CLAIMS

1. A rock drilling machine comprising at least:

a frame (9);

a percussion element (10) for generating stress pulses;

a shank (12) arranged at the front of the percussion element (10) in the percussion direction (A), the shank (12) comprising a percussion surface (13) for receiving said stress pulses; and further

an axial bearing (100) comprising at least: a first piston (20) and a second piston (21); between the pistons (20, 21), an axial first contact surface (60) and an axial second contact surface (43a), the contact surfaces (60, 43a) being located in the same pressure space (28); at least one pressure duct (35) for leading pressure fluid from a pressure source (90) to the axial bearing (100); pressure surfaces in the pistons (20, 21), on which surfaces the pressure fluid is arranged to act for axial movement of the pistons (20, 21); and in which axial bearing (100) the pistons (20, 21) are arranged to push the shank (12) along a different travel length towards the percussion direction (A); the force of said pistons (20, 21), by the action of the pressure fluid towards the percussion direction (A), being dimensioned such that the percussion surface (13) is adjustable during drilling at the desired axial point for receiving the stress pulses, **characterized** in

that the same pressure fluid fed to the axial bearing (100) is arranged to act on said piston (20, 21) contact surfaces and pressure surfaces.

2. A rock drilling machine as claimed in claim 1, **characterized** in

that behind the second piston (21) is provided a first pressure space (32) that is in contact with the first pressure duct (35) for feeding pressure fluid to the axial bearing (100),

that the first contact surface (60) and the second contact surface (43a) are located in the second pressure space (28) in front of the first pressure space (32), and

that the pressure fluid fed to the axial bearing (100) is arranged to flow from the first pressure space (32) to the second pressure space (28).

3. A rock drilling machine as claimed in claim 2, **characterized** in

that a third pressure space (27) is provided in front of the first con-

tact surface (60), and

that pressure fluid is arranged to flow from the second pressure space (28) to the third pressure space (27).

4. A rock drilling machine as claimed in claim 3, **characterized** in

that between the third pressure space (27) and the second pressure space (28) is provided at least one throttle (29) arranged to act on the pressure acting in the second pressure space (28) by throttling the flow of pressure fluid between said pressure spaces (27, 28).

5. A rock drilling machine as claimed in claim 3 or 4, **characterized** in

that the third pressure space (27) is in contact with at least one second pressure duct (33), and

that at least one element (34) for affecting the pressure acting in the third pressure space (27) is provided in the second pressure duct (33).

6. A rock drilling machine as claimed in any one of the preceding claims, **characterized** in

that the first pressure duct (35) is in contact with the percussion pressure duct of the rock drilling machine (4), and

that the first pressure duct (35) comprises at least one element (36) for affecting the flow of pressure fluid.

7. A rock drilling machine as claimed in any one of the preceding claims, **characterized** in that the first piston (20) and the second piston (21) are sleeve-like pieces arranged around the percussion element (10) or the shank (12).

8. A rock drilling machine as claimed in claim 7, **characterized** in

that the first piston (20) is an elongated sleeve supported to the frame (9) in the area of its first and second ends,

that in the section between the first end and the second end, the first piston (20) comprises a shoulder (26) provided on the outer periphery of the sleeve (20), the shoulder having an axial first contact surface (60) pointing in a direction (B) opposite to the percussion direction (A),

that the second piston (21) is around the first piston (20), and

that the second piston (21) comprises a second contact surface (43a) pointing in the percussion direction (A) and arranged in the same pres-

sure space as said first contact surface (60).

9. A rock drilling machine as claimed in claim 1 to 6, **characterized** in

that the axial bearing (100) is located at least mainly behind the percussion element (10),

that the percussion element (10) is a sleeve-like piece, and

that the first piston (20) is configured to act on the shank (12) by means of an elongated spacing piece (110) that is at least partly inside the percussion element (10).

10. A rock drilling machine as claimed in claim 1 to 6, **characterized** in

that the axial bearing (100) is located at least mainly behind the percussion element (10),

that the percussion element (10) is a sleeve-like piece, and

that the first piston (20) is arranged partly nestled within the sleeve-like percussion element (10) and arranged to act through the percussion element (10) on the shank (12).

11. A rock drilling machine as claimed in claim 1 to 6, **characterized** in

that the axial bearing (100) is located at least mainly behind the percussion element (10),

that the percussion element (10) is a sleeve-like piece, and

that the shank (12) is provided with a section, which is arranged at least partly nestled within the percussion element (10) and on which the first piston (20) is arranged to act.

12. An axial bearing for a percussion rock drilling machine, the axial bearing (100) comprising at least:

a frame (9c);

at least a first piston (20) and a second piston (21) arranged in a space formed in the frame (9c), both comprising at least one pressure surface;

at least one pressure duct (35) for leading pressure fluid to said pressure surfaces for axial movement of the pistons (20, 21); and,

between the pistons (20, 21), axial contact surfaces (60, 43a) located in the same pressure space (28), **characterized** in

that the same pressure fluid fed to the axial bearing (100) is arranged to act on said piston (20, 21) contact surfaces and pressure surfaces.